\$/101/68/007/003/005/029 Stability of the super-regenerative ... D204/0302

to a Mathieu form and its stability diagram is discussed. For a special case of stability the authors refer to P.L. Repitta (asf. 11: Chaff 1951, 21, 5, 586). There are 1 figure and 11 references: 8 Soviet-bloo and 3 non-Soviet-bloo. The references to the Inglish Language publications read as follows: H. Rowe, Proc. IRE, 1950, 465, 850; K.G. Smart, Proc. IRE, 1961, 49, 6, 1051.

SUBMITTED: July 27, 1961

Card 2/2

# "APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514920018-1

9,2572

\$/109/62/007/006/022/024 J200/11:08

AUTHOR:

de risershteyn, H. Ye.

111111

axelitation of acoustic oscillations in semiconductor

divies

PERIODICAL: Radiotekanika i elektronika, v. 7, no. 6, 1:62,

1097-1057

PLMT: The purpose of the paper is to suggest a possible mechanism for the excess noise grenomenon found in parametric amplifiers employing semiconductor diodes. It is assumed that the acoustic waves in the lattice interact with the electrons, leading to an inprease in the fluctuations. The dispersion equation for these waves, derived in an earlier paper of the author, is

 $\omega = \sqrt{(kv_0)^2 + \omega_{\pi}^2 \varepsilon_0^{-1}(\omega, k)}$ 

(2)

Card 1/2

#### "APPROVED FOR RELEASE: 09/24/2001 CIA

CIA-RDP86-00513R000514920018-1

Excitation of acoustic ...

3/109/62/007/006/022/024 5266/5305

where  $\delta_{\rm m}$  - plasma frequency of the positive ions building up the lattice, k - wave number,  $\delta_{\rm m}$  - effective dielectric constant of the medium for an axial wave. The conditions for self-generation are:

Im ω > 0, Im ε < 0

(3)

The second condition is fulfilled when the effective collision cross-section is a decreasing function of velocity. This is proved by assuming that the collision frequency is a function of velocity and separating the d.c. and a.c. terms in the equation of motion. The lower frequency limit is estimated by requiring that the dimensions of the region in the vicinity of contact must be of the order of a few wave lengths. The author states that his results are in qualititative agreement with the available experimental results and believes that further refinement would need a quantum-theoretical approach.

JUBAITTED: May 8, 1961

Jard 2/2

381:66

3/103/62/007/006/011/024 5266/0308

24,7000

Acthord: Gertsenshteyn, M. Ye. and Pubtovoyt, V. I.

11712: Propagation of space charge acoustic waves in semi-

conductors

PERIODICAL: Radiotekhnika i elektronika, v. 7 no. 6, 1902,

1003-1013

TEXT: Two approaches are presented: The first ani simpler one takes no account of the microscopic properties of the crystal and only issumes the existence of a space charge wave. It is shown on this basis that the a.c. goes to infinity if the phase velocity of the electromagnetic wave agrees with the drift velocity of the carriers (only electrons are considered). The second approach starts with the hydrodynamical equations of charged media

 $\frac{\partial \rho}{\partial t} + \operatorname{div} \mathbf{v}_{p} \rho = 0,$ 

Card 1/4

$$\rho \frac{\partial \mathbf{v}_{p}}{\partial t} + (\mathbf{v}_{p} \mathbf{v}') \mathbf{v}_{p} = - \gamma \mathbf{P} + \mathbf{q} \mathbf{E} + \rho_{o} \frac{\mathbf{m}}{\mathbf{N}} \mathbf{v}_{s} (\mathbf{v}_{p} - \mathbf{v}_{s})$$
 (10)

where  $\mathbf{v}_0$  - velocity pertaining to lattice vibrations,  $\rho$  - the corresponding charge density,  $\rho$  - pressure, q - charge in a volume element in the absence of carriers,  $\chi$  - 'coefficient of ionization', ratio of the carrier concentration to the concentration of atoms in the lattice,  $\chi$  1,  $\theta$  - average value of the electric field in the prystal,  $\theta$  - collision frequency,  $\theta$  - a.c. velocity of the carriers,  $\theta$  m,  $\theta$  - mass of the carriers and ions respectively. Neglecting the a.c. density component of lattice vibrations and assuming a plane electromagnetic wave Eqs. (10) are solved yielding the characteristic equation. Introducing

 $\omega = k v_s + i v_t, \qquad (19)$ 

Cara 2/4

\$/109/62/007/006/011/024

frogagation of blace ...

, - frequency of the electromagnetic wave,  ${\bf v}_s$  - velocity of sound in the crystal in the absence of carriers) and assuming that  ${\bf x}_e$  the following equation is obtained:

$$Im \, \gamma_1 = \frac{4\pi}{2\pi} \, \hat{\mathbf{v}} - \frac{2}{2} - \hat{\mathbf{a}} (1 - \hat{\mathbf{a}}) + \frac{2}{2} (1 - \hat{\mathbf{a}})^2 \tag{21}$$

where is the plusma frequency of the carriers, 2 g v v ph. v - drift velocity of electrons, v ph - phase velocity of the electromagnetic wave. Growing waves arise if Im 0. i.e. 5 0 or 6 1. The lower frequency limit is given by the condition

$$vo \Rightarrow v_o^{-1} \tag{6}$$

Card 3/4

### "APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000514920018-1

Propagation of space ...

3/105/62/007/006/011/024 D266/D303

where  $\frac{1}{0}$  - effective relaxation time of the peroth harmonic of the distribution function determined by the inelastic scattering of the carriers on phonons. The upper frequency limit is

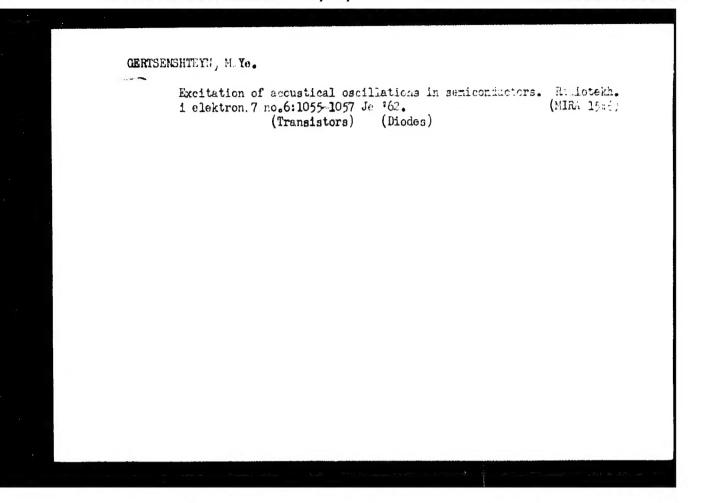
 $x = x = \frac{7 \cdot 3}{6 \cdot 1 - 3}$ 

(22)

It is conjectured that the excess noise found in demiconductor diodes is caused by this mechanism.

SUBMITTED: July 7, 1961

Card 4/4



CERTSENSHTEIN, M., kand.fiziko-matematicheskikh nauk

Light will show the gravity waves . Znan.-sila 37 no.12:36-37
D '62. (MRA 16:2)

(Gravity waves)

GERTSENSHTEYN, M.Ye.; PRAKHIN, P.F.

Measuring the choherence of grid and anode noises of tubes.

Izm.tekh. no.ll:50-52 N '62. (MIRA 15:11)

(Electron tubes—Noise)

41,007

\$ 050,51 042 001 021 044 8104 8102

24.4500

9.9867

AUTHORS: Phistovoyt, V I . Jertsenshteph, M To

TITLE:

Gravitational radiation from a relationation particle

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoj fiziki, v de

n: 1, 1962, 163-170

TEXT: A charged relativistic particle is examined traveling along a river curvilinear path in a magnetic field. As the gravitational interaction is weak, the trajectory is fully determined by electromagnetic interaction. The energy of gravitational radiation is computed. Not only the mass tensor of the particle itself, but also those electromagnetic stresses which are caused by the charge are the source of the gravitational waves, their contribution to the radiation being of the same order as that of the mass. The small additions to the metric tensor correspond to two processes of gravitational wave formation—the usual type of mass and charge emission, and the resonance emission of gravitational waves by the electromagnetic field in the presence of a constant external magnetic field. It is shown that the energy dependence of the intensity of

Card (1/2)

34007

Gravitational radiation from a

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radiation of gravitational waves in the ultrarelative stic case 13 the same as that of an electromagnetic field. Professor V. L. Jinzburg is thanked for assistance, and Professor L. E. Juravida for administration. There are 12 references. 7 Soviet and tonon-Soviet. The four mout regent references to English-language publications read as follows. L. Infeli A. E. Scheiderger Can. J. Math., A. 195, 197; J. N. J. Aberg. Phys. Rev. 99, 1877, 1955; A. E. Scheiderger. Phys. Rev. 93, 1887, 1955; P. Havas. Phys. Rev. 108, 1351, 1957.

ASSOCIATION

Fizicheskiy institut im P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev, fithe Adalemy of

Schences USSR)

SUBMITTED

June '6, 1961

Cart 1/2

GERTSENSHTEYN, M.Ye.; PUSTO 'OYT, V.I.

High-frequency conductivity of a plasma in the presence of a direct current. Zhur. eksp. i teor. fiz. 43 no.2:530-542 Ag '62.

(MERA 16:6)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

(Plasma (Ionized gases)) (Rlectric conductivity)

GERTSENSETEYN, M.Ye., PUSTOVOYT, V.I.

Detection of low-frequency gravitational waves. Zhur. eksp. i teor.
fiz. 43 no.2:605-607 Ag '62. (MIRA 16:6)

(Gravity)

1. 1010-63

ACCESSION NR: AP3000196

8/0115/63/000/005/0014/0048

AUTHOR: Gerteenshteyn, M. Ta., Lipriye, Th. A.; Smirnov, Tu. G.

TITLE: Measurement of sensitivity in regenerative circuits

SOURCE: Immeritel nava tekhnika, no. 5, 1963, 44-48

TOPIC TAGS: noise temperature, noise figure, receiver sensitivity, regenerative circuit

ABSTRACT: A variation of noise figure measurement at microwave frequencies is described which minimizes some of the usual difficulties, such as the need for high equipment stability during measurement and the problem of change in receiver gain caused by switching in of a noise source. A standard noise source, preferably a gas-discharge tube, and a standard reference signal generator are connected to the receiver in question via a directional coupler of at least 20-db directivity. The signal generator output is calibrated in accurate attenuation increments. Bither AGC or a limiter-discriminator stage is added to the receiver, if not already built in, followed by a second detector, an LF amplifier and an output vacuum tube voltameter (VTVM). In operation, a reference signal is first applied to the receiver, giving a VTVM reading, then

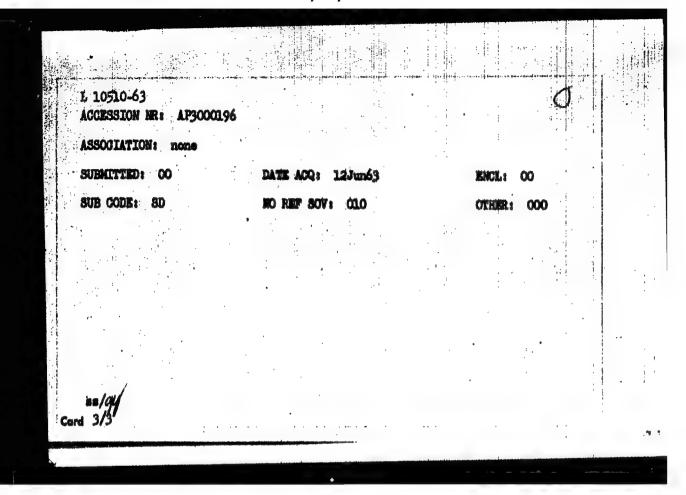
L 10510-63 ACCESSION NR: AP3000196

the noise source is switched in, raising the output reading. The meter reading is brought back to its initial level by raising the input reference signal amplitude, which by increased AGC bias reduces the amount of noise passed and maintains the output reference signal virtually constant. The resulting difference in reference signal attenuation settings H is used to calculate the noise figure F by the formula

 $P = N_{1}-1/N-1$ 

in db, where Nu is the ratio of noise source temperature to standard temperature. The accuracy of the method is determined by the resolution of the attenuator settings. It is shown that the output of the second detector, whether proportional to amplitude, phase, or frequency, is a direct function of signal-to-noise ratio, and that errors due to impedance mismatch or equipment instability are minimal. The method was verified experimentally using the variation of limited and frequency discriminator. Orig. art. has: 11 formulas and 3 figures.

**Card 2/3** 



GERTSENSHTEYN, M.Ye.; TIMONOVA, N.V.

Graphical analysis of the stability of systems with negative resistance. Radiotekh.i elektron. d no.3:510-513 Mr '63. (MIRA lb:3)

(Amplifiers (Electronics)) (Tunnel diodes)

L 12952-63

EWT(1)/BDS/RED-2/EE0-2

AFFTC/ASD/ESD-B

S/109/63/008/001/030/030

AUTHORS:

Rabinovich - Vizel', A. A., and Gertsenshteyn, M. B.

TITLE:

On relaxations in frequency multipliers with non-linear capacitance

("varactors")

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 4, 1963, 725-727

TEXT: The authors point out that resonance phenomena in ferrous-metal circuits are well known in low-frequency radio-technology. Relaxational oscillations can arise in such circuits by reason of the fact that the resonance frequency of the circuit, involving induction with iron metal depends on the amplitude of the current. A similar situation, they say, arises in the case of circuits using "varactors," i.e., diodes with a non-linear capacitance. They go on to explain that a change in capacitance alters the circuit resonance frequency (a). Thus, a circuit with a parametric diode, in terms of its characteristics, has much in common with circuits containing iron. This makes it possible, in principle, to lay out a diagram which would be analogous to a ferro-resonance stabilizer. What the authors are primarily concerned with in the present paper, however, is the generation of relaxational oscillations in high-precision circuits with parametric diodes. They explain that the resonance frequency of the circuit which includes the diode,

Card 1/2

L 12952-63

8/109/63/008/004/030/030

On relaxations in .....

depends on the power P delivered to the diode. A change in tuning of the circuit alters the value of P. Thus, in the simplest case, when the diode receives voltage only on a single frequency, the following closed chain obtains:

The authors explain that of the two branches of a resonance curve, the left one is stable, while the right one gives rise to the relaxational oscillations. Thus, in cases where only a single frequency is involved, in order to eliminate the relaxations, it is sufficient to place the working point along the stable branch of the resonance curve. The situation is more complicated when there is a combination of oscillations, involving several frequencies.

SUBMITTED: October 16, 1962

Card 2/2

ACCHISCION NRs AP3003715 A

AUTHOR: Gertsenshteyn, M. Is.; Linber, B. Ys.

TIME: On the theory of regenerative systems with random pumping

SOURCE: Radiotekhnika i elektronika, v. 8, no. 7, 1963, 1145-1155

TOPIC TAGS: regenerative system, random pumping, parametric amplifier, regenerative parametric amplifier

ABSTRACT: Equations for constant and variable components of an amplified signal are derived for the case of an arbitrary pumping correlation and a sinusoidal input signal. A general method for solving these equations is given. Formulas for the regular and random component at the output of a regenerative paramagnetic amplifier? as well as expressions for multiplications of two, four, and six random functions, are obtained. These data are derived for two-frequency amplifier circuits without conversion, but they can be easily adapted to other parametric and quantum molecular amplifiers. The proposed methods make it possible to calculate the response of an amplifier to a sinusoidal signal and its statistical characteristics at any with of the pumping frequency spectrum. The presence of a random component results in a loss of information while the signal passes through

Card 1/2

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j	Card 2/2						}	1

GERTSENSHTEYN, M.Ye.; PUSTOYCTT, V.I.; FILIFOV, S.S.

Hypersound amplification in piezoelectric semiconductors. Radiotekh. i elektron. 8 ho.9:1607-1614 S '63. (MIRA 16:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR. (Piezoelectric substances)

TATARSKIY, V.I.; GERTSENSHTEYN, M.Yo.

Propagation of waves in a medium with strong fluctuations of the refractive index. Zhur. eksp. i teor. fiz, 44 no.2: 676-685 F '63. (MIRA 16:7)

1. Institut fiziki atmosfery AN SSSR.

ACCESSION NR: AP4016586

5/0115/64/000/002/0027/0028

AUTHOR: Gertsenshteyn, M. Ye.; Prakhin, P. F.

TITLE: Measuring antenna noise

SOURCE: Izmeritel'naya tekhnika, no. 2, 1964, 27-28

TOPIC TAGS: antenna noise, radio noise, antenna noise measurement, radio noise measurement

ABSTRACT: A simple method is proposed for determining antenna noise by means of standard equipment which measures the noise figure with a reference signal; the method practically excludes mismatch and instability errors. First, the generator 3 and then the antenna 1 should be connected to the receiver 6 (see Enclosure 1). The relative noise temperature of the antenna is given by  $\theta_A = 1 - (1 - M_2)F_0 = M_1 - (1 - M_2)\theta_0$ , where  $M_2$  is the reference-signal level when the antenna is connected,  $F_0$  and  $\theta_0$  are the noise figure and the relative noise

Card 1/3

ACCESSION NR: AP4019853

\$/0181/64/006/003/0879/0887

AUTHORS: Pustovoyt, V. I.; Gertsenshteyn, M. Ye.

TITLE: On the possibility of amplifying flemural waves

SOURCE: Fizika tvordogo tela, v. 6, no. 3, 1964, 879-887

TOPIC TAGS: semiconductor film, phase velocity, dielectric permeability, wave amplification, piezo semiconductor

ABSTRACT: It is shown that in semiconductor films flexural waves could be amplified if the carrier drift speed surpasses the phase velocity of the flexural waves. The equation describing the flexural wave in a thin film is derived with the accompanying dispersion relation. The dielectric permeability tensor for the plasma carriers in a semiconductor is determined next, and the flexural wave amplification condition is stated by means of the inequality

$$\frac{1}{u}\frac{v_{\tau_{i}}^{2}}{h^{2}} \ll u < \frac{c_{1}}{h},$$

where C1 - transverse wave speed in infinite medium. For a CdS crystal this

**Card** 1/2

ACCESSION NR: AP4019853

yields  $10^4$ c  $<<\omega<10^7$ c. Expressions are derived for the growth and frequency dependence of amplification, and for CdS the maximum amplification is found to be 50 db/cm at 10 megacycles frequency. The effect of adding a magnetic field on the amplification of the flexural wave is studied. The transfer electron diffusion is shown to decrease under a strong longitudinal field. Numerical calculations show that the increment in intensification for electron-phonon interactions is significantly lower than in piezo-semiconductors. The authors are grateful to V. L. Ginzburg and L. V. Keldy\*sh. Orig. art. has: 42 equations and 1 figure.

ASSOCIATION: Vsesoyuzny\*y nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy Moscow (All-Union Scientific Research Institute for Physical and Technical and Radio Technological Measurements)

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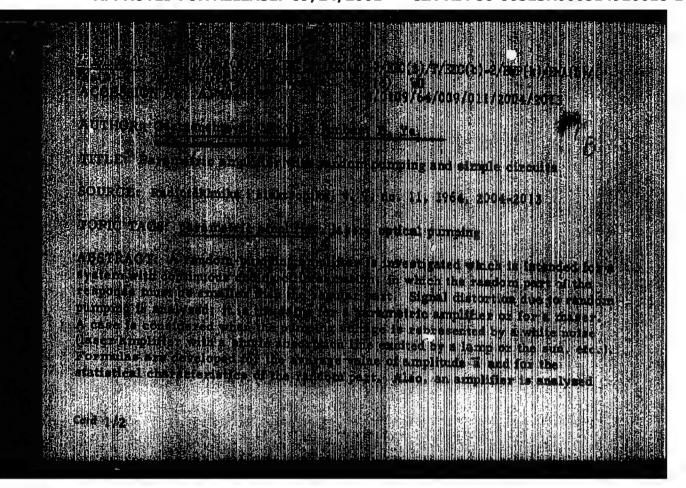
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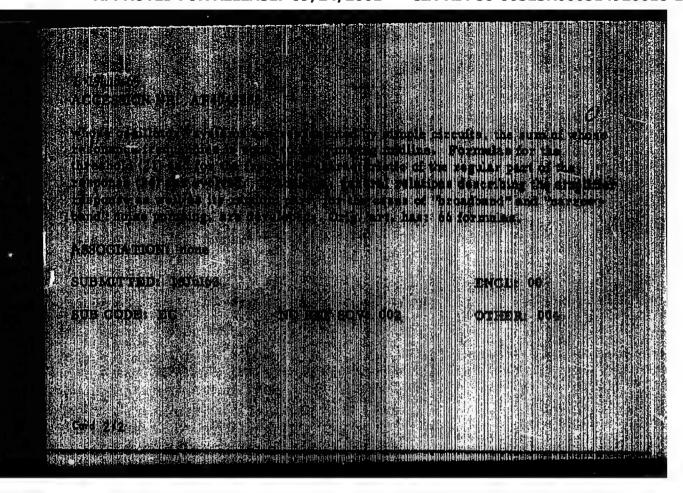
Card 2/2

Greelal features of removerable clouds synthesis. Padioteks.

1 wiektron. 9 no.10:1763-1768 c 1/2.

(MIDA 17:10)





L 1900-66 EWT(d)/EBC(k)-2

ACCESSION HR: AP5024169

UR/0115/65/000/008/0032/0035 621.391.822.083

AUTHOR: Gertsenshteyn, M. Ye.; Boloshin, I. A.

TITLE: Measurement of the noise factor of optical-range linear receiving systems

SOURCE: Izmeritel nava tekhnika. no. 8, 1965, 32-35

TOPIC TAGS: optic receiver, receiver characteristic

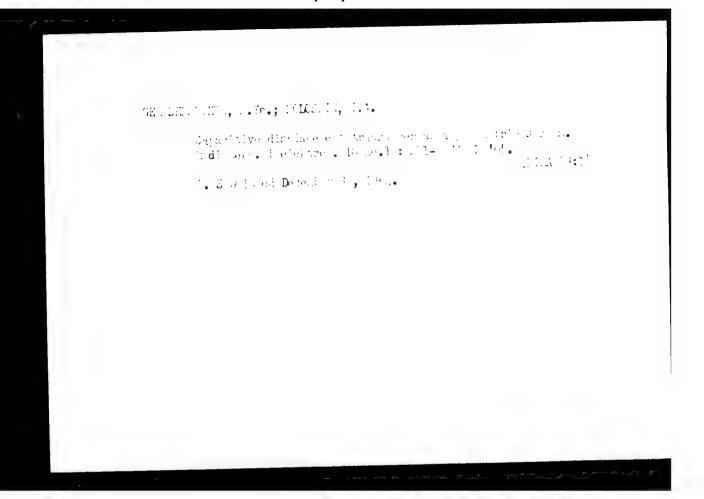
ABSTRACT: The appearance of lasers had led to the development of linear optical receivers with transmission bands that are relatively narrow in the optical range. The article discusses the determination and measurement of the noise characteristics of such devices, particularly the noise factor, which is a variable permitting not only the calculation of sensitivity, but also an evaluation of the noise characteristics of the apparatus from the standpoint of realization of its physical potential. In the analysis of noise measurements in the optical range, the following characteristics are considered: (1) the noise power of technically feasible noise sources is very low, and (2) in the optical range, the size of radiation sources and resonators are much greater than the wavelength; for this reason, the reception of many types of waves is possible in noise measurements (the systems are of a multimode character). The consequences of these characteristics

			$\mathcal{O}_{\mathbb{C}}$				
are considered in a discussion of the measurement of the noise factor of single-mode receivers. The analyzed method of measuring the noise factor makes it possible to determine the noise characteristics of not only an isolated photocathode, but of the entire apparatus making up the receiver. Orig. art. has: I table and 12 formulas.							
ASSOCIATION: None							
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Greater No. 19., ECICSHIN, 1.4.

Frometical noise minimum of linear systems. Fadiotekhnika
70 no.8:78-79 hg '65. (MIRA 18:8)

1. Leystwitellnyve Nauchno-tekhnicheskogo obshchestva
radiotekhniki i elektrosvyaza imeni A.S. Ecpeva.



L 15270-66 EWT(1) IJP(c) AT ACC NR: AP6004088

SOURCE CODE: UR/0020/66/166/002/0317/0319

AUTHOR: Gertsenshtevn M. Ye.

49

ORG: none

TITLE: On the problem of fluctuation in photocurrent

SOURCE: AN SSSR. Doklady, v. 166, no. 2, 1966, 317-319

TOPIC TAGS: photoelectric offect, theoretic physics, quantum physics, semiconductor theory

ABSTRACT: The author considers fluctuations in photocurrent in quantum systems where the fluctuations depend on the energy spectrum of the material and the method used for current excitation. The high frequency case is examined where the fluctuation in photocurrent have half the value predicted by the formula which assumes that electron motion takes place according to the laws of classical mechanics and that the various particles are independent. It is assumed that photocurrent is generated in an optically thin transparent layer of a semiconductor by monochromatic radiation of frequency  $w_0$  which is such that the frequencies  $w_0$  and  $w_0 + 2\pi f$  lie above the

UDC: 535.215.12

21, 411,5

Card 1/2

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\* ).

L 15270-66

ACC NR: AP6004088

red end of the absorption band, while frequencies  $\omega_0$  -  $2\pi f$  lie below it. There are no electrons in the conduction band in the absence of illumination. In this case, the frequency of the exciting radiation is considerably greater than  $2\pi f$  and the temperature of the conductor is assumed to be zero which implies the condition

 $kT/2\pi h f < 1$ . (1)

The author calculates the fluctuations in the number of carriers in the conduction band within the framework of the quantum model. It is found that the reduction in fluctuations is due to condition (1) and is a quantum effect. Since the correlation of fluctuations in the number of carriers is a property of the spectrum of the semiconductor and is independent of the dimensions, this property should also be observed under conditions of high optical thickness. An experiment is discussed for measuring the noise power at the same photocurrent as a function of the frequency of the exciting light. The theoretical data indicates the possibility of minimizing noises during reception in the quantum region. The author is grateful to Professor L. E. Gurevich for discussing this work. Orig. art. has: 1 figure, 11 formulas.

SUB CODE: 20/ SUBM DATE: 18May65/ ORIG REF: 005/ OTH REF: 001

Card 2/2

L 23182-66 PSS 2/Brt(1) WR SOURCE CODE: UR/0108/65/020/010/0072/0074

AUTHOR: Gertsenshteyn, M. Ye. (Active member); Boloshin, I. A. (Active member)

ORG: Scientific and Technical Society of Radio Engineering and Electrocommunication (Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Receiving radar signals in the optical band

SOURCE: Radiotekhnika, v. 20, no. 10, 1965, 72-74

TOPIC TAGS: radar, optic radar, radar receiver, electromagnetic field, frequency

band ABSTRACT: The peculiarities of radar reception associated with the quantum structure of the electromagnetic field are theoretically considered when hi > kT. Two cases are examined: (1) Minimum band, sB > n; in this case, the receiver measures only real photons and is insensitive to zero fluctuations; the number of received photons is a Poisson-law-distributed random value; under noise conditions, formulas of the classical detection theory may prove invalid. Here, B is the frequency band in space, n is the number of quanta received per second, s is the number of modes discernible by the receiver. Thus, the detection characteristics of the optical band depend on the type of receiver and its regime of operation. Orig. art. has: 7 formulas.

SUB CODE: 17 / SUBM DATE: 01Feb65 / ORIG REF: 011 / OTH REF: 006

Card 1/1 200

UDC: 621.396.96

JXT(CWN)/WR L 22780-66 EWT(1)/T SOURCE CODE: UR/0109/66/011/003/0465/0470 ACC NR. AP6008283 AUTHOR: Boloshin, I. A.; Gertsenshteyn, M. Ye. ORG: none TITLE: Noise factor of linear receiving antennas in the quantum band SOURCE: Radiotekhnika i elektronika, v. 11, no. 3, 1966, 465-470 TOPIC TAGS: laser, optical band, noise factor, receiving antenna ABSTRACT: A generalized concept of the noise factor applicable to both radio and optical ranges is considered; a general formula for noise is:  $P = B \frac{hf}{2} \operatorname{cth} \frac{hf}{2kT}$ , where h is the Planck constant, k is the Boltzmann constant, and B is the power passband. For r-f band: hf < kT,  $P \simeq kTB$ ; for optical band:  $hf \gg kT$ ,  $P \simeq (h/2)B$ , which shows that, at "normal" temperatures, the noise amounts to 1/2 quantum per 1 cps of the passband (cf. H. Heffner, Proc. IRE, 1962, 50, 7, 1604). Any noise exceeding this level manifests imperfection of receiving equipment. For example, the excessive noise power of a linear receiving device is: UDC: 621.396.883.22:621.378.5 Card 1/2

ACC NR: AP6008283		2
$P_{\text{exo}} = (F-1)P$ $= (F$	$-1)B\frac{hf}{2}\coth\frac{hf}{2kT}$ . On the above basis, formula	as are developed for
requency parametric naser (W. H. Louise hank A. A. Kulikovs	inear-amplifier cascade, an equivalent noi circuits, a regenerative parametric amplied et al., Phys. Rev., 1961, 124, 1646). kiy and V. I. Tikhonov for their valuable act. has: 2 figures and 23 formulas.	The authors wish to
	BM DATE: 03Oct64 / ORIG REF: 005 /	OTH REF: 004
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FRO/EWT(1)/ERC(k)=2/T/EWP(k)/EWA(h) IJP(g) ΝĢ ALC NR: AP6008290 SOURCE CODE: UR/0109/66/011/003/0526/0531 AUTHOR: Gertsenshteyn, M. Ye.; Bakhareva, M. F. 499  $\mathcal{B}$ ORG: none TITLE: The problem of phase relations during amplification in an active medium SOURCE: Radiotekhnika i elektronika, v. 11, no. 3, 1966, 526-531 TOPIC TAGS: laser, Raman laser, parametric amplification, nonlinear optics, maser ABSTRACT: A theoretical analysis is made of the amplification of a weak light signal in an active medium. It is shown that in the linear approximation amplification of a weak signal in a two-level parametric medium and in three-level quantum media (including Raman lasers) can be described by the same dispersion equation. Conditions are established under which solutions of this equation correspond to one or the other type of amplification. Special cases of the amplification of transverse and longitudinal waves are considered. Orig. art. has: 16 formulas. SUB CODE: 20/ SUBM DATE: 25Nov64/ ORIG REF: 009/ OTE REF: 010/ ATD PRESS Cord 1/1 dde UDC: 621.378.325.001

EWT(d)/F88-2 SOURCE CODE: UR/0109/66/011/003/0537/0538 T. 21549-66 ACC NR: AP6008293 AUTHOR: Gertsenshteyn, M. Ye. ORG: none TITLE: Realizing power-saving conditions in the optical band SOURCE: Radiotekhnika i elektronika, v. 11, no. 3, 1966, 537-538 TOPIC TAGS: optical band, optical band communication, laser ABSTRACT: This formula for power-saving conditions  $(B \gg n)$  of optical-band communication is developed: where B is the frequency band in free space; n is the number of photons per sec;  $C_0$  is the traffic capacity of electromagnetic field;  $\beta = C_0/\pi$ , When  $x \rightarrow 0$ , the information content per one photon β -- co . It is proven that, for maximum traffic capacity under power-saving conditions, a spacing-pulse modulation (in which information is carried by the spacings) is needed. The second best - the phase-pulse modulation - may require UDC: 621.376.5.029.67 Card 1/2

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	SUB CODE	: 09/	SUBM DATE	: 04Apr64/	ORIG REF:	004/	OTH REF:	004/	ATD PRESS:
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L 21143-66 EVT(m)/EWP(j)/T/EWA(h)/EWA(1) CM SOURCE CODE: UR/0364/66/002/001/0117/01223

AUTHOR: Silin', E. A.; Motorykina, V. P.; Shmit, I. K.; Geyderikh, M. A.; Davydov B. E.; Krentsel', B. A.

ORG: Latvian State University (Latviyskiy gosudarstvennyy universitet); Institute of Petrochemical Synthesis, Academy of Sciences SSSR (Institut neftekhimicheskogo sinteza Akademii nauk SSSR)

TITLE: Structural changes in polyacrylonitrile during infrared irradiation

SOURCE: Elektrokhimiya, v. 2, no. 1, 1966, 117-122

TOPIC TAGS: polyacrylonitrile, IR absorption spectrum, electron spectrum

ABSTRACT: The purpose of this investigation was to study the effect of intense radiation on polyacrylonitrile. The selective interaction of radiation on the vibrational energy of individual groups of polyacrylonitrile molecules was assumed. The use of a concentrated IR beam was used to obtain a polyacrylonitrile film with treated sections of a given geometric configuration and degree of conversion. Polyacrylonitrile film was obtained by redox initiation with an average molecular

UDC: 621.315.592 : 547

Card 1/3

1

L 21143-66 ACC NR: AP6003503

weight of 23000-36000. The films were prepared from 3% polyacrylonitrile solution in dimethylformamide and kept in vacuum to a constant weight. The film thickness was 8-12 microns. The films were irradiated in 10 5-10 6 mm pressure chamber through a quartz window about 100 mm from the light source. The spectra of irradiated samples were obtained in air at room temperature. Electronic absorption spectra were taken on an SF-4 spectrophotometer and vibrational spectra were taken on an IKS-14 spectrophotometer. It was found that infrared irradiation produces significant changes in the vibrational absorption spectra of polyacrylonitrile. The IR irradiation increases the mobility of hydrogen in tertiary carbon and facilitates its migration to the nitrile group, >C=NH, which, in turn, produces intermolecular cross-linking. The hydrogen band is formed between the >C=NH group and the neighboring mitrile group. This scheme is supported by the appearance of the diffuse absorption band, shifted toward the 3.45 cm 1 region, which is assigned to the valence vibrations of the >N-H...N=C-group. Electronic spectra also indicate the formation of polyunsaturated bonds. The comparison of the vibration absorption spectra of polyacrylonitrile upon thermal treatment with those of the same material irradiated with IR show that both in their initial and subsequent stages, the conversion process during IR irradiation differs from the conversions which take place during thermal treatment, Conversion of polyacrylonitrile during IR irradiation

Card 2/3

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perimen	two parts t	of this work.  SUBM DATE:	orig. art.	has: 3 figur	·es .	OTH REF: 013
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### "APPROVED FOR RELEASE: 09/24/2001

### CIA-RDP86-00513R000514920018-1

UR/0056/66/050/004/1084/1094 SOURCE CODE: AP6014049 ACC NR AUTHOR: Giterman, M. Sh.; Gertsenshtayn, M. Ye. ORG: Institute of Physicotechnical and Radiotechnical Measurements (Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy) TITLE: Theory of the Brownian motion and the possibility of application of the theory for investigating the critical point of a pure substance SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966, 1084-1094 TOPIC TAGS: Brownian motion, critical point ABSTRACT: By virtue of the fluctuation and dissipation theorem, the characteristic features of Brownian motion near the critical point of a pure substance were defined by the particular dependence of the moving particle on frequency of the force acting on it. For a macroscopic particle, the determination of mobility is a hydrodynamic problem. To solve this problem near the critical point, the high compressibility of the liquid and the possible effect of the large radius of the density correlations should be taken into account. General formulas for mobility and Brownian displacement were obtained, and the characteristic frequencies which are important in the critical region were evaluated. It was found that for displacements occurring during periods exceeding the characteristic time  $\tau_i = |\omega_{0i}|^{-1}$  ( $\omega_{01}$  is the Card 1/2

### L 27159-66

ACC NR. AP6014049

characteristic frequency), the mean square displacement of a Brownian particle is determined by the usual Einstein equation. For times less than  $\tau_1$ , the equation also contains a coefficient dependent on the ratio of the displacement and the volume of viscosities. The presence of a large correlation radius for the density fluctuations near the critical point does not significantly modify the nature of the Brownian motion, and, in essence, reduces to a certain degree the Brownian particle radius. These conclusions are based on the assumption that the absence of a strong frequency dependence of viscosity (for periods of fluctuation of the order of the Brownian particle displacement times involved). The authors thank Academician M. A. Leontovich for his advice and discussions. Orig. art. has: 43 formulas. [Based on authors abstract.]

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 008

Card 2/2 BK

I 38227-66 EWP(m)/EWT(1)/T LJP(c) OW

ACC NR: AP6024872 SOURCE CODE: UR/0056/66/051/001/0129/0134

AUTHOR: Gertsenshteyn, M. Ye.

03G: none

TITLE: The possibility of an oscillatory nature of gravitational collapse

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 129-134

TOPIC TAGS: general relativity theory, gravitational collapse, supernova, gravitation

ABSTRACT: An attempt is made to show that gravitational collapse is not an irreversible attraction of matter toward the center but an oscillatory equilibrium. It is pointed out that Newtonian motion at zero pressure is a classical analog of collapse and is of an oscillatory nature. The latter persists in the associated coordinate systems of the general theory of relativity. For a spherically symmetric conservative motion such as the transition from compression to expansion, there are two possibilities: passage through the center with a nonzero velocity, or a turning point at a finite distance from the center. It is shown that the first case holds in the relativistic case for all possible relativistically invariant state equations such that  $p=\beta\epsilon$ ,  $0\le\beta\le1$ . Oscillatory collapse regarded as a supernova model

Card 1/2 ·

is discus	sed.	Such a model ., from the	is possib	ole if oscil	llatory	r collapse	can be	Observed f
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002 0000.	207	SUBM DATE:	09Sep65/	ORIG REF:	012/	OTH REF:	001/	ATD PRESS: 5344

L 40365-66 E/T(1)

ACC NR: AP6014246

SOURCE CODE: UR/0109/66/011/005/0916/0924

13

AUTHOR: Boloshin, I. A.; Gertsenshteyn, M. Ye.

ORG: none

TITLE: Properties of three-frequency parametric circuits

SOURCE: Radiotekhnika i elektronika, v. 11, no. v. 1966, 916-924

TOPIC TAGS: parametric resonance, parametric amplifier, parametric converter, multifrequency amplifier

ABSTRACT: D. K. Adams (IRE Trans., 1960 MTT-8, 274) analyzed 3-frequency parametric circuits in which weak signals of  $f_1$ ,  $f_2$ ,  $f_3$  frequencies have interesting characteristics and potentialities;  $f_1$  is the input-signal frequency;  $f_2 = f_1 - \psi$ ;  $f_3 = f_1 + \psi$ ;  $\psi$  is the pumping frequency. The present article analyzes the most important practical case when  $f_1$  is substantially lower than  $\psi$  and when both side

Card 1/2

UDC: 621.378.01:621.391.82

L 40365-66

ACC NR: AP6014246

frequencies resonate in the same circuit tuned to a near-pumping frequency. It is found that: (1) Such 3-frequency circuits have essential advantages: high input impedance, wide passband, stable amplification equal to the frequency ratio or even higher; (2) In the r-f band, the 3-frequency circuits have no higher noise than the 2-frequency circuits, and are superior to the latter insofar as stability and passband are concerned; (3) In the quantum region, when  $\hbar\omega\gg kT$ , the 3-frequency circuit has higher noise (5 times as high in selective reception, 2 times in homodyne reception) than the 2-frequency regenerative circuit; (4) The 3-frequency circuit has the important advantage of operating with detuned input without impairing its sensitivity. Orig. art. has: 2 figures, 43 formulas, and

SUB CODE: 09 / SUBM DATE: 07Jan65 / ORIG REF: 008 / OTH REF: 006

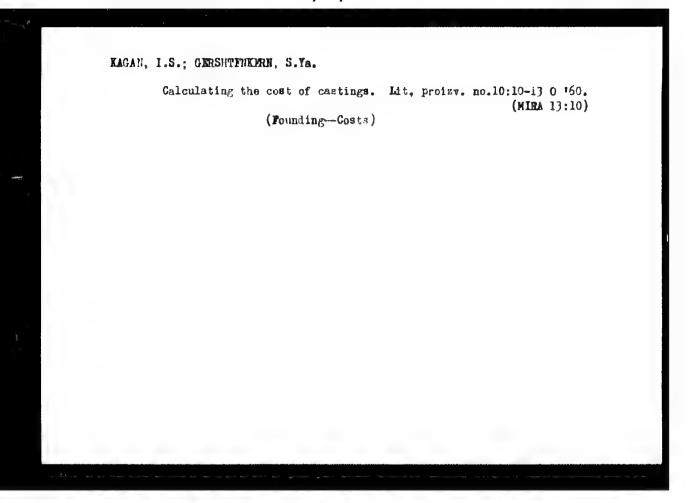
Card 2/2 hs

GERTSENSHTETN, R., kand.sel'skokhozyaystvennykh nauk

Fish ensilage. Mauka i pered.op. v sel'khoz. 8 no.11:35 N '58.

(MIRA 11:12)

(Ensilage) (Fish as food)



1 29875-66 EWT(1)/EWP(m)/EWT(m)/T

ACC NR: AP6013222

SOURCE CODE: UR/0L21/66/000/002/0163/0166

AUTHOR: Gertsenshteyn, S. Ya. (Moscow)

ORG: none

TITLE: The effect of a single rough spot on the appearance of turbulence

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza. no. 2. 1966, 163-166

TOPIC TAGS: turbulent flow, incompressible fluid

ABSTRACT: The article investigates the problem of the steady state of a viscous incompressible liquid past a single rough spot. The solution was investigated approximately with respect to stability. A calculation is made of the additional resistance due to the appearance of a single rough spot. Determination of the friction stress is considered with respect to the pressure drop at a single rough spot. The mathematical development starts with the aquation, in dimensionless coordinates, for the plane steady state motion of a viscous incompressible liquid:

 $\frac{1}{r}\frac{\partial (\psi_1, \Delta \psi_1)}{\partial (r, 0)} - \frac{1}{R}\Delta \Delta \psi_1 = 0 \qquad \left(R = \frac{n_0 d}{v}\right) \quad (1.1)$ 

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ACC NR: AP6013222

Here b, is the flow function;

$$-\frac{\partial}{\partial (r;\,0)},\qquad \Delta = \frac{\partial^2}{\partial r^2} + \frac{1}{r}\frac{\partial}{\partial r} + \frac{1}{r^8}\frac{\partial^2}{\partial \theta^2}$$

are the Jacobian and the Laplace operator, respectively. Based on the mathematical treatment, the article gives several examples of numerical calculations with the results exhibited in tabular form. "The author expresses his deep indebtedness to his scientific director G. I. Petrov. The author is also deeply grateful to his co-workers at the Institute of Mechanics of the MGU, V. T. Kharin and V. A. Medyedev." Orig. art. has: 11 formulas, 2 figures and 2 tables.

SUB CODE: 20/ SUBA DATE: 06Mer65/ ORIG REF: 003/ OTH REF: 006

Card 2/2 W

Making milk-base fillings from whole milk in coil apparatus.

Khleb.i kond.prom. 1 no.7:39-40 J1 '57. (MERA 10:7)

1. Konditerskaya fabrika imeni Rosy Lyuksemburg, Odessa. (Confectionery).

9/133/62/000/001/005/010 A054/A127

AUTHORS:

Broyman, M. Ya., Gertsev, A. I., Zelichenok, B. Yu., Krivonosov,

Yu. I., Rimen, V. Kh., Sokol, V. N., Mel'nikov, A. F.

TITLE:

Investigating the power parameters of the 2800 mill of the Orskc-Khalilovskiv metallurgicheskiy kombinat (Orsk-Khalilovo Metallurgical

Combine)

PERIODICAL: Stal', no. 1, 1962, 45 - 48

TEXT: To increase the output of the 2800 mm mill, tests were carried out at the Orske-Khalilovskiy metallurgicheskiy kombinat (Orsk-Khalilovo Metallurgical Combine), in cooperation with the Yuzhnoural'skiy mashinostroitel'nyy zavod (Southern Ural Mechanical Engineering Plant). These tests were aimed at investigating the motor capacity and the metal pressure on the rolls. The mill consisted of two stands: a 2-high roughing stand (with rolls of 60%H (60KhN) and 60%F (60KhG) steel, barrel diameter: 1,150 mm, roll-neck diameter: 690 mm), and a reversing 4-high finishing stand (work-roll diameter: 800 mm, diameter of the support rolls: 1,400 mm). Carbon and low-alloy steel sheets (CT.3KM/St.3kp, 14FH/14GN, 15%CHZ/15KhSND, CT.0/St.0, CT.5/St.5), 8 - 50 mm thick, 1,500 -

Card 1/3

S/133/62/000/001/005/010 A054/A127

Investigating the power parameters of ...

2,500 mm wide and 18 m in length are rolled on the stands. The operation of the 2-high stand consists of 4 longitudinal passes, tilting through 90° and 6 - 8 passes for lateral deformation, with 2 - 4 subsequent longitudinal passes. In order to ensure accurate dimensions, a special gauge is used in which several rods of trie same height are mounted instead of one and in which the wire pickups are connected in series, thus not depending on the load distribution between the rods. The power parameters were determined by rolling 41 slabs (2.7 - 4.7 tons) on the 2-nigh and 36 strips on the 4-high stand. The rolling conditions on the 2-high stand are given in a table. The pressure values obtained for the 2-high stand are 1,040 tons during the first longitudinal rolling, 1,940 tons during the laterai rolling and 2,300 tons during the second longitudinal rolling. The metal pressure on the 4-high stand is 2,090 tons, usually the stand works with 1,300 -1,700 tons pressure and a reduction of 20 - 25%. The pressures actually applied during rolling remain below the permissible level. The results were also checked by comparing them with experimental values for the motor torques, calculated for various metal pressures. The comparison yielded practically identical values. The pressure gaugings were carried out at roll-rotation rates of 30 - 45/min on the truth stand and at 60 - 80 rpm on the 4-high stand. By increasing the roll

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S/133/62/060/001/005/ H Investigating the parameter; of ... A054/A127

specific retal pressure could be raised by 8 - 10% on the 2-high stand and by - 7% of the properties. The final conclusions drawn from these tests were that the distributed the 4-high stands of the 2,800 mm strip mill are not furly the large of the 4-high stands of the 2,800 mm strip mill are not furly the large of the 4-high stands of the 2,800 mm strip mill are not furly the large of the 4-high stands of the 2,800 mm strip mill are not furly the large of the 4-high stands by 30 - 40%, thus raising the stands of the 10% of the 4-high stand by 30 - 40%, thus raising the stands of the 4-high stand by possible to reduce the number of properties of the 4-high stand producing and thinner of the 4-high stand. There are 3 figures and 9 references: I non-finitely and 8 Soviet-bloc. The reference to the English-language publicables reads as follows: A. Nadai, M. I. Manjone, Journal of Applied Mechanics, 1941,

Cast 1/3

Construction of grounding stages. Energetik 11 no.11:23
N 163. (MIRA 16:11)

KOVYNEV, M.V., inzh.; ZELICHENOK, B.Yu., inzh.; GERTSEV, A.I., inzh.; VOZNESENSKIY, V.A., inzh.

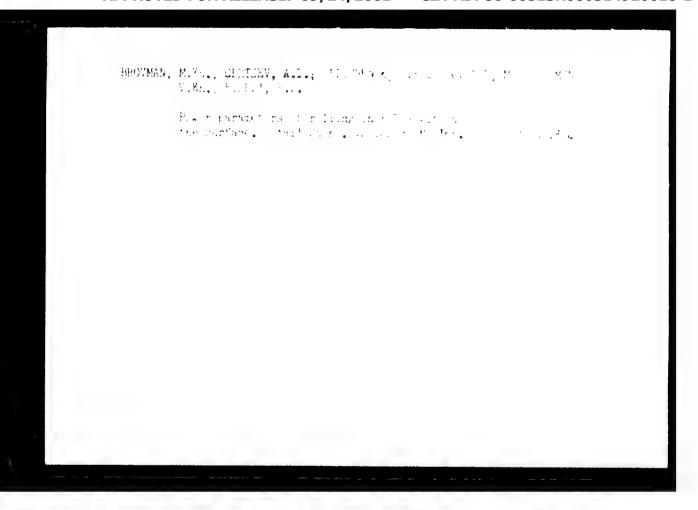
Optimum amount of slab reduction in stands with 2800 vertical roll mills. Stal\* 23 no.61529-530 Ja \*103. (MIRA 10110)

1. Orsko-Khalilovskiy metallurgicheskiy kombinat.

KOVYMEV, M.V., inzh.; The LEMINOK, M.Y.., inzh.; d. Fl., inzh.

FIDEL!, E.L., inzh.; KALE. BENK, K.B., inzh.

Effect of certain technological factors of rolling the two high mill on the shape of the piece. Stall with 1911 1913 N 'e4.



- 1. KAPUSTINA, 7.A.; GERTSEV, V.A.
- 2. HSSR (600)
- 4. Agricultural Machinery
- 7. Joint work of vegetable and tractor bricades, Z.A. Macustina, ".A. Certsev, Sad i or no. 3, 1993.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Unclassified.

GERTSEV, V.V.; MAKAROV-7EMLYANCKIY, Ya.Ya.

Synthesis and study of carbohydrate polycorates. Tysokom.soed. t no.8: 1458-1462 Ag \*64. (MIRA 17:10)

1. Moskovskiy tekanologicheskiy institut tegkov promysalennosti.

GRESHNOV, V.M., kand. tekhn. nauk, dotsent; GRRTSEV, V.V., so livest

Gas-liquid chromatography of boric acid enters. Nauco icudy
MTILP no.29:131-132 '64.

1. Kafedry organicheskoy khimii, analiticheskoy i neurganicheskov knimii Moskovakogo tekhnologicheskogo instituta logkoy procyaniennisti.

-	L 42962-66 ENT(m)/ENT(1) WN/JW/2H  ACC NR: AR5024994 SOURCE CODE: UR/0081/66/000/007/E019/E019
	AUTHOR: Gertsev, V. V.; Makarov-Zemlyanskiy, Id. Id.
	TITIE: Complexing of mixed boric esters of carbohydrates and simple alcohols with amines
	SOURCE: Ref. zh. Khimiya, Part II, Abs. 7N129
	REF SOURCE: Nauchn. tr. Mosk. tekhnol. in-t legkoy prom-sti, vyp. 31, 1965, 297-299
•	TOPIC TAGS: carbohydrate, organoboron compound, amine
	ABSTRACT: The reaction of transesterification of boric esters of simple alcohols with carbohydrates forms polyboric esters of carbohydrates. The reaction takes place via a stage of formation of mixed boric esters of carbohydrates and simple alcohols which do not crystallize and do not distil under vacuum, and, when the temperature of the reaction modium is raised, disproportionate to form polyboric esters of carbohydrates. The separation of mixed boric esters of carbohydrates and simple alcohols, where disproportionation was prevented by complexing with amines (benzylamine, diethylamine), was studied. The precipitation of amine complexes of these esters takes place readily from a medium of ethyl or petroleum ether in the form of a white precipitate; there is the amine molecule per 3 atom chemically bound by the C-O-D ether bond to a carbohydrate group. Five grams of mannitol and 58 ml of B(CC3Ni2)3 are placed in a flask. To the mannitol polyborate obtained are added 60 ml of B(CCH3)3 and 50 ml of absolute
	Card 1/2

·,	I. 42968-66 ACC NR ARS024994	
	ethyl other, followed by 40 ml of a 50% solution of bennylamine in absolute forty-three grams of the complex C6Hg[CE(CC3H7)2]6.5MH2CH2C6H5 is obtained. phy of 4 titles. I. D. [Translation of abstract]  SUB CODE: 07/	ether. Bibliogra
	Card 2/2 - '/	no draka gogina e van tur sudrakustus

ZINCHENKO, V.A.; YERSHOVA, N.A.; GERTSEVA, N.M.

Determination of bi- and trivalent titanium in titanium slags.
Titan i ego splavy no.8:242-246 '62. (MIRA 16:1)

(Titanium-Analysis)

(Valence (Theoretical chemistry))

**S/075/62/017/006/002/004 1032/1232** 

AUTHORS:

Zinchenko, V.A., Gertseva, N.M.

TITLE:

Determination of metallic sodium in the presence of

titanium dichloride

PERIODICAL: Zhurnal amalitichesko, khimii, v.17, no.6, 1962, 670-673

TEXT: Metallic sodium in melts containing titanium dichloride is determined gasometrically by the following method. The sample is treated with an aqueous solution of sulfosalicylic acid that has been neutralised with ammonia containing some ammonium chloride. The sulfosalicylic acid forms a stable complex compound with the bivalent titanium ion, which fact prevents oxidation of the titanium ion by ionic hydrogen. The amount of hydrogen gas evolved is therefore equivalent to the amount of metallic sodium in the sample. There

Card 1/2

\$/075/62/017/006/002/004 1032/1232

Determination of metallic sodium in the ...

are 1 figure and 4 tables. The English language references read: 1. Dean, R.S., Metal Ind. <u>90</u>, 3, 9,10 (1957). 2. Hanry, T.A., Baker, D.H., U.S. Bur. Mines; Rept. Invest. No.5661 (1960)

ASSOCIATION:

(All-Union Aluminium-hagnesium Institute, Leningrad)

SUBMITTED: June 13, 1961

Card 2/2

GERTSEVA, N.S.

137-58-5-11159

Franslation from: Referativnyy zhurnal, Metallurgiya, 1958. Nr 5 p 327 (USSR)

AUTHOR Gertseva, N.S.

TITLE: Determination of Copper, Cadmium, Nickel, Cobalt, and Zincby the Method of Derivative Polarography (Opredeleniye medi, kadmiya, nikelya, kobal'ta i tsinka metodom proizvodnoy

polyarografii)

PERIODICAL Tr. Nauchno-tekhn. o-va chernoy metallurgii. Ukr. resp. pravl., 1956, Vol 4. pp 49-55

ABSTRACT Comparative determinations of Cu. Cd. Ni. Co. and Zn contained in a NH4Cl-NH4OH solution were carried out on an electron polarograph of the TsLA type by the standard polarographic method, as well as by the method of derivative polarography. A sensitivity of 0.05 mg/cc was achieved with the standard method, the sensitivity of the derivative method is approximately one-half as great. It is shown that the derivative method is not effective when the ratio Cu.Cd is greater than one because the Cu  $(\mathbf{E}_{1/2}=-0.5\ v)$  greatly affects the height of the Cd step  $(\mathbf{E}_{1/2}=-0.7\ v)$ ; the peak of Co  $(\mathbf{E}_{1/2}=-1.2\ v)$  remains unaffected

Card 1/2 even by a 400-fold excess of Cu. It is noted that the potential of

137-58-5-11189

Determination of Copper, (cont.)

the peak is displaced in the negative direction by an increase in concentration of the element being determined, as well as by an increase in concentration of the more electro-positive element. It is established that the method or derivative polarography extends the useful range of the polarographic method into concentrations on the order of 8-10 g/liter.

N.G.

1. Metalls--Determination 2. Polar graphic analysis--Agricients.

Card 2/2

Gerts . . B. C.

137-1957 1 - 15494

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 17 p 56. US5R)

AUTHOR: Gertseva, N S

TITLE: Polarographic Determination of Bismuth, Copper and Lead

Simultaneously Present in a Solution (Polyarograticheskeye opredeleniye vismuta, medi i svintaa pri ikh odnovremennom

prisutstvii)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957 Nr. pp. 38-40

ABSTRACT: Bi, Cu, and Pb may be polar ographed simultaneously ligatest

a background of HCl (1:3) and 10 percent tartaric acid. Hast wave potentials are = 0.12, =0.34 and 0.4, b (bottom Hg) respectively. The presence of H-SO<sub>4</sub> and or an excess of HCl rano adverse effects. When determining Cu gelatin must be added to the solution; however, in this case the calibration corrects. does not pass through 0. A solution containing Bi. Ch. and Ph. is evaporated to a small volume and trun ferricational 100 militiaries. So ml of the background compound are added, to lowed by H.O. which is filled up to a marker, after which the Bi. or polarogy (100).

Two or three drops of I percent greating south a lare their indice-

Card 1/2 the electrolyzer (approx 10 ml of the schenor) and Care-

137-1457-12-251+1

Polarographic Determination of Bismuth, Copper, and Lead (cont.)

polaregraphed. Pb may be polaregraphed both with and without the gelatin by taking into consideration the fact that gelatin reduces the diffusion current of Pb. The method described permits the determination of Bi in amounts ranging from 5 mg.1 to 500 mg.1 in a solution containing six times as much Cu and any amount of Pb. Cu may be determined at concentrations between 10-150, and Pb in amounts starting with 350 mg.1.

N. G.

- 1. Bismith-Determination 2. Copper-Determination
- 3. Lead-Determination 4. Polarographic analysis-Applications

Card 2/2

Geris.

- 9-- 1 - - 5- -

Translation from: Reterationey zhurnal, Metallurgera, etc. Dr. C. F. etc. 1552

AUTHORS: Gertseva, N.S., Khomyakova, Ye. A

TITLE: Determination of Large Quantities of Fitam ruby the Peter golds

Method (Opredelenive bot shikh somehes) then nonvaried to be

metodom)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1947, Nr. 1, pp. 41, 144

ABSTRACT: It is established that It may be determined polar graphic It, without being preliminarily extracted from it in my guerric ore.

concentrates, and slags containing 50 to percent 7.0 To obtain a standard solution of Ti, one gram of the metal in dissolved in 125 ml of H<sub>2</sub>SO<sub>4</sub> (1:4) accompanied by gentle heating. After adding 500 - 600 ml of water a stream of O<sub>2</sub> is passed through the solution in order to oxidize Ti<sup>3+</sup> to Ti<sup>4+</sup> until the solution loses all color. H<sub>2</sub>O<sub>2</sub> is added antil the total volume is one liter, and a titration signified is established.

polarographically by means of a standardized sample containing large quantities of TiO<sub>2</sub>. A background compound is prepared

Card 1/2 by dissolving 18 to g of trilon B in 800 mi at HiO containing

100 100 100 100 100

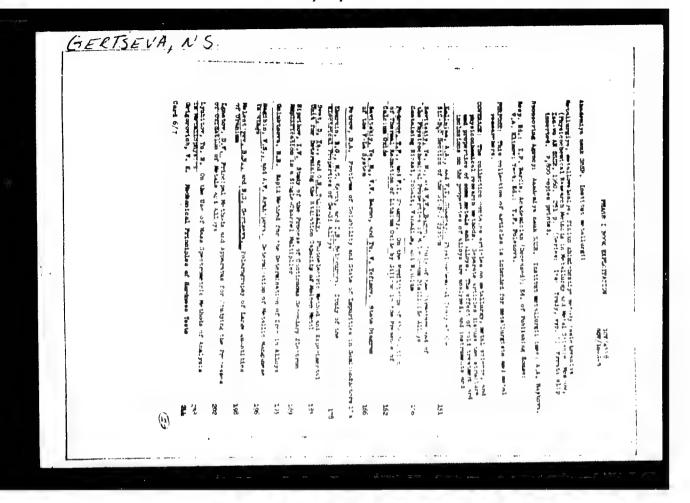
Determination of Large Quantities of I that was from .

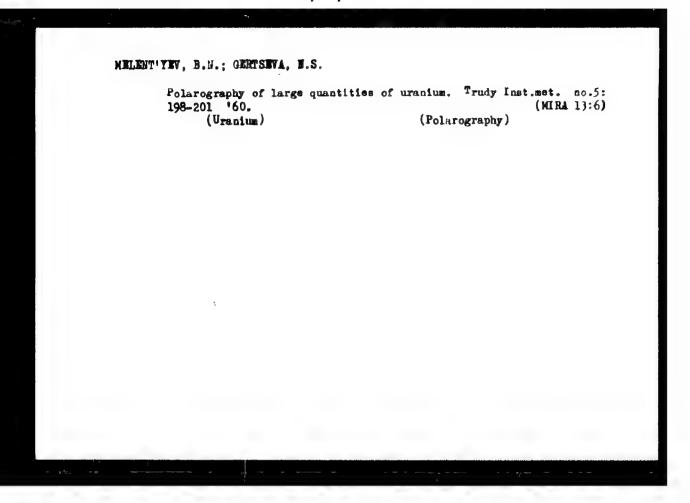
Fig. mi.  $NH_4$  OH; 27% g of CH  $_1$ COONa one added to lower affect of the solution by  $_1$ S millions of red H  $_2$ SO $_4$  to reserve the lysis of the Ti). The solution street is a tree is a tree as the random value of make a volume of one after. A partial of the material radio of maintaine of HF and H  $_2$ SO $_4$ . After terms with the finere mainder is dissolved in HCI, the exterior to a constitute of deviation and filled with H  $_3$ O to a marker. As a sign a position is ensured rated to  $_2$ T S millional, after cools give that term it is supplemented by  $_3$ O multiple files in the compound. After ten minutes the solution of the files in the NH4 OH, using methyl red indicated a cooler is a position of  $_3$  solution. At a 11 concentration of a smooth  $_3$  she tend of error amounced to  $_3$ S percent.

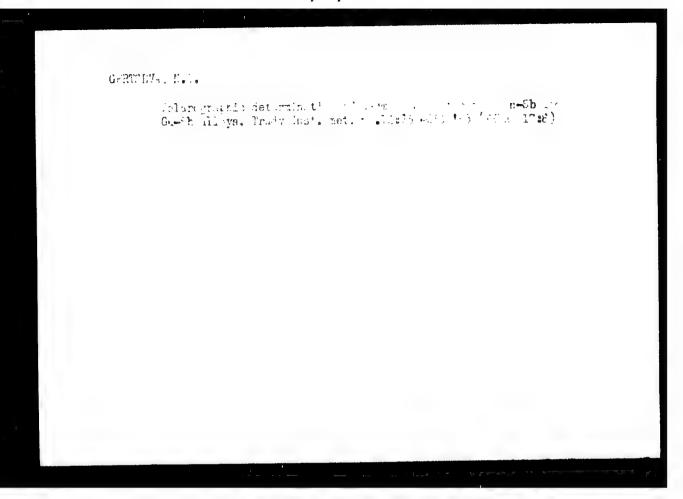
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1. Titanium - Determination 2. Polarographic analysis - Applications

Card 2-2





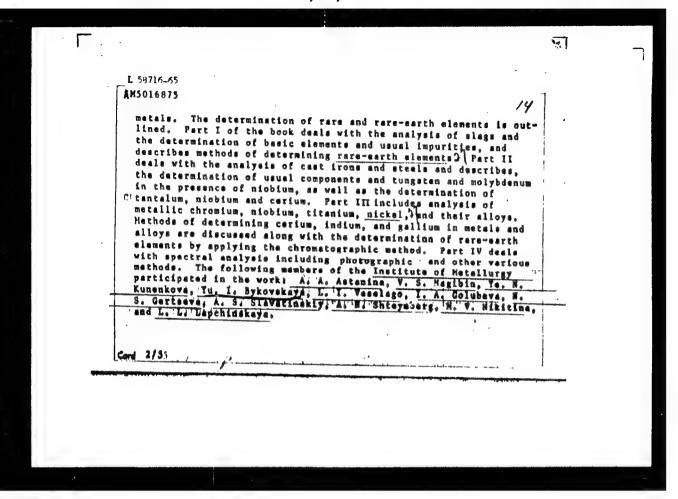


ASTARINA, A.A.; NAGIBIN, V.S.; KUNENKOVA Ye.I.; SYKOVSKAYA, Yu.I.; VESELYY, L.I.; GOLUBEVA, I.A.; GERTIEVA, H.J.; SLAVATINSKIY, A.S.; SHTEYNBERG, A.H.; NIKITINA, M.V.; Prinimala uchastiye LAPCHINSKAYA, L.L.; FORGEAREV, A.I., otv. red.; DRAGUNOV, E.S., red.

[Chemical and spectrum analysis in metallurgy; a practical guide] Khimicheskii i spektralinyy analiz v metallurgii; prakticheskoe rukovodstvo. Moskva, Nauka, 1965. 382 p. (MIBA 18:4)

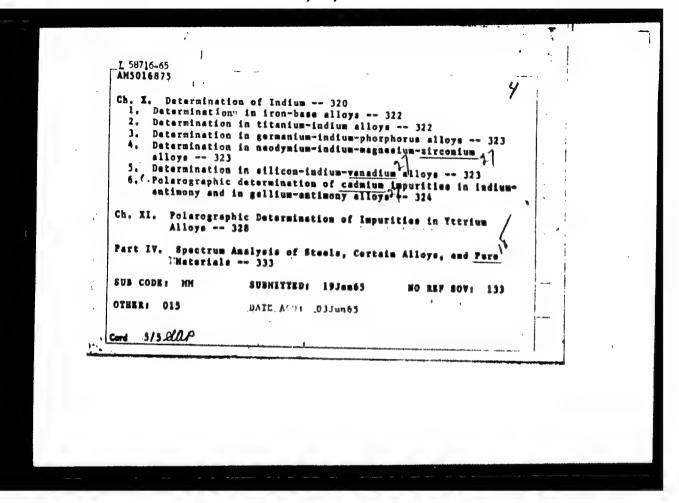
1. Moscow. Institut metallurgii. 2. Analiticheskaya laboratoriya Instituta metallurgii im. A.A.Baykova (for all except Ponomarev, Dragunov).

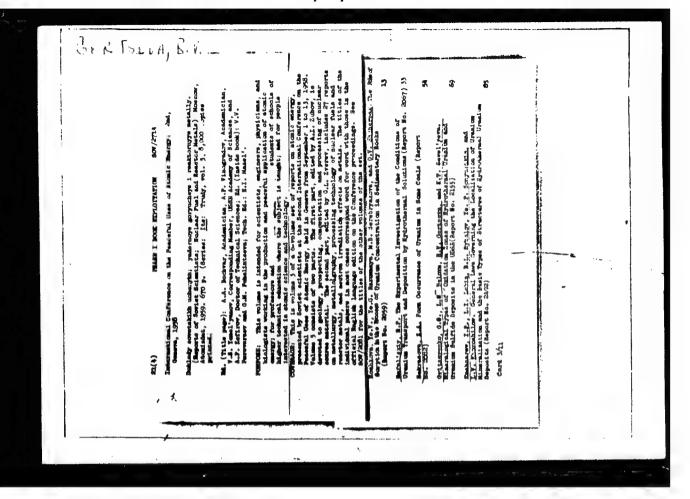
	AH5016875  BOOK EXPLOITATION  OR7 669:543/545+543.42  Ponomarev, A. I., ed.  Chemical and spectrum analysis in metallurgy; a practical handbook  (Khimicheskiy i spektral nyy analis v metallurgi; prakticheskoye	
	rukovodstvo) Hoscow, Izd-vo "Nauks", 1965. 382 p. illus., tables, index. (At head of title Akademiya nauk SSSR. Gosudarstvennyy komitet po chernoy i tsvetnoy metallurgii pri Gosplane SSSR. Institut metallurgii im. A. A. Baykova) Errata slip inserted. 3000 copies printed.	
	TOPIC TAGS: analysis, chemical analysis, physicochemical analysis, spectral analysis, slag analysis, steel analysis, from analysis, alloy analysis, pure metal analysis, element determination, rare earth element determination, impurity determination	
•	PURPOSE AND COVERAGE: This book is intended for specialists and workers at scientific-research and plant laboratories. The book describes chemical, physicochemical and spectral methods of analysing slags, steels, from, various alloys, and some pure	
,: 	Cord 1/5	



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TABLE OF	CONTENT [Abridged]	1:	8	
Forewore	(1)	( <b>.</b>		
1	Analysis of Glage	Irons and Steels 110	•	
9. 111. 4.	Hetals and Alloy malysis of chronium Determination of yt alloys 273 Determination of ch Analysis of Miobium Determination of tuations 285	ermination of Individual sylvand its alloys 266 trium and chromium in your major and its alloys 276 ungsten and niobium in a of aluminum in niobium	ttriup-chromium nium elloys 275 Biobium-tungsten	<i>}</i>
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			•	

• '	L 58715-65
•	AH&D16875
	10. Bichromatic method of determining molybdenum in niobium-
,	I Dawe HIIOYS 494
	11. Determination of niobium and gallium in niobium-gallium a alloys 293
,	13. Polarographic determination of titanium in titanium-
	niobium alloys (with titanium content up to 652) 295
	Ch. VIII. Determination of germanium 314
٠.	1. Weighing method of determining germanium in germanium.
	2. Determination (of germanium) in silicon 1 315 A
	3. (Colorimetric determination [of germanium] in indium-
	4. Determination of silicon, tellurium and sermentum in additions
·	tellurium-germanium alloys 315 5 Datermination of thailium in germanium-thallium alloys 316
	i or constructive method of determining antimody in matality
<b>\</b>	germanium 317
,	
	Card. 4/5
	The state of the s
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GERTSEVA, R.V.: TSYBUL'SKAYA, M.S.; AMBARTSUMYAN, TS.L.; NAZARENKO, M.G.;
POLUARSHINOV, G.P.; KHODZHAYEVA, R.P.

New data on hydrous pitchblende and urgite. Zap.Vses.min.ob-va
90 no.5:549-556 '61. (MIRA 14:10)

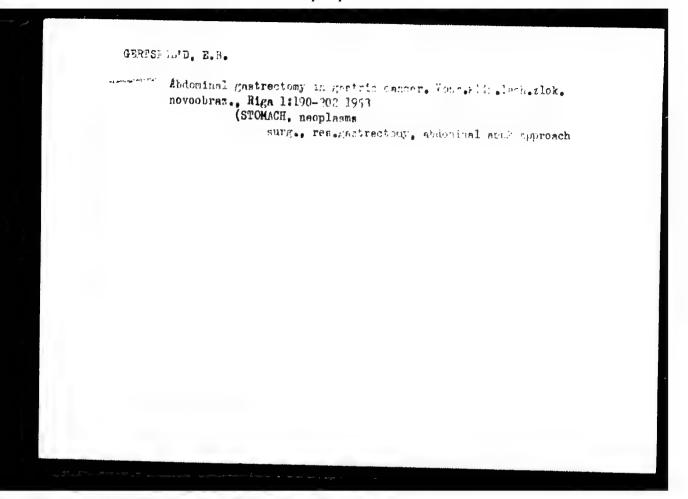
(Urgite) (Pitchblende)

GERTSFEL<sup>1</sup>D. A.B. (Riga)

Report on the activities of the Society of Urologists of the Latvian S.S.R. in 1956-1957. Urologis 23 no.4277 Jl-Ag 158 (MIRA 11:8)

(LATVIA--UROLOGY--SOCIETIES)

Gertsfel'd, E. "On the problem of clinic and therapy of gastro-duodenal ulcers (from the material of surgical clinic)," Adrawookmaneniya Sov. Letvii, 1948, (Trom the material of surgical clinic), "Author- reference in Aussian ymposium 2, p. 29-48 - In Latvian language - Author- reference in Aussian So: U-3050, 16 June 33, (Letopis 'Ahurnal 'nykh Statey, No. 5, 1949)



Extensive surgery in rectal cancer. Voor.klin.leca.zlok.novoobraz.

Riga 21197-205 1955.

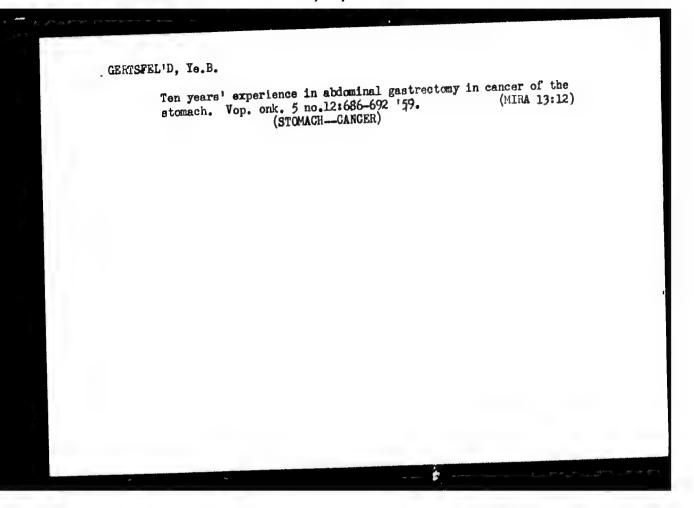
1. Reapublikanskiy onkologichenkiy dispanser Latviyskoy SSR
(glaverach = M.G. Sopil'nyak).
(RECTUM, neoplasms,
curg. extensive (Rua))

GERTSFEL'D. E.B. (Riga, ul. Tukuma, d. 10, kv. 1.)

Treatment of anal cancer [with summary in English] Vop. onk.
3 no.1:65-69 '57

1. Is khirurgicheskogo otdeleniya (zav.-E.B. Gertsfel'd)
Respublikanskogo onkologicheskogo dispansera latviyskoy SSR (glavn. vrach-M.G. Sopil'nyak)

(ANUS, neoplasma surg.)



GERTSIG, J.

"Question on spendy fattening of young cattle."

p. 25 (Nezhduna Rodnyi Selskokhoziaistvennyi Zhurnol, Vol. 2, No. 2, 1958, Sofia, Pulgaria).

Monthly Index of East European Accessions (EMAI) LC, Vol. 7, Mo. 12, Lec. 58.

507/120-59-2-9/50

AUTHOR: TITLE:

Gertsiger, L.N.

Magnetic Fieldmeter with Remote Control (Izmeritel'

napryazhennosti magnitnogo polya s distantsionnym

upravleniyem)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 33-35

(USSR)

ABSTRACT: This instrument is designed to measure constant magnetic fields in the range 300-20 000 oersted in the gap of a large magnet and is based on the phenomenon of nuclear magnetic resonance. The probe unit introduced into the magnet gap is small in size and includes a high frequency The probe unit introduced into the signal generator, a crystal detector and one stage of a low frequency amplifier. The basic circuit is shown in

The high frequency generator includes a

ferroelectric condenser. By applying different d.c. voltages to this condenser its capacity (and consequently

the frequency of the generator) may be varied. capacity of the ferroelectric element is given as a function of temperature in Fig 3 (upper curve). The curve was obtained at 50 cps. The capacity of the

Card 1/2 ferroelectric element as a function of d.c. voltage

S07/120-59-2-9/50

Magnetic Fieldmeter with Remote Control

applied to it is shown in the lower curve of Fig 3.

The capacity changes between 200 and 30 µp F when the voltage changes between 0 and 400 volts d.c. The thickness of the ferroelectric layer was 0.5-0.6 mm. The unit is thermostated and its frequency stability is better than 1% in 3-4 months. The probe may be used

is better than 1% in 3-4 months. The probe in gaps greater than 3.5 cm.
There are 4 figures and 2 Soviet references.

SUBMITTED: April 17, 1958

8(2), 24(3)

AUTHOR:

Gertsiger, L. N., Engineer

507/419-59-5-15/22

TITLE:

A Measuring Device for Magnetic Induction of the IMI-2 Type

(Izmeritel' magnitnoy induktaii tipa IMI-2)

PERIODICAL:

Priborostroyeniye, 1959, Nr 5, pp 27-28 (USSR)

ABSTRACT:

The measurement of constant magnetic fields must often be carried out with a high degree of accuracy. For this purpose, one of the enterprises of radiotechnical industry developed the measuring device INI-2 for the measurement of magnetic induction and has already started the production of this device. It is based on the nuclear-magnetic resonance and ensures an accuracy of measurement of at least 0.00% in the measuring range of 250-25,000 gauss. The operation principle of this device is as follows: A primary element is introduced into the field to be measured. It contains a sample of the substance to be investigated. The nucleus precesses around the direction of the field similar to a ministure gyro. The frequency (), of this precession is directly preparticual to the

magnetic field strongth wo = INo, I designating the so-called

gyromagnetic ratio of the nucleus which is not influenced by any external effect. Besides the constant field  $\mathbf{H}_{c}$ , the nucleus should

Card 1/3

A Measuring Device for Magnetic Industion of the HT-2 Lype 307 119-59-5-15/22

be affected by the high-frequency alternating field H<sub>4</sub> which is perpendicular to Ho. The forces arising in this case want to change The orientation of the nucleus in the field  $\mathbf{H}_{\alpha}$ . If the frequency  $\omega$ of the alternating field is equal to the frequency of the precession of the nucleus, the orientation of the nucleus in the constant magnetic field changes discontinuously. The block scheme of the device IMI-2 is shown in a diagram. The primary element for the measurement of the magnetic field consists of a cylindrical glass ampule which contains the substance to be investigated. The device IMI-2 uses the resonance of protons, lithium cores and deuterons. Accordingly, ordinary water, a saturated aqueous solution of lithium chloride, and heavy water are used as samples. To increase the resonance effect, a pertain quantity of iron perchloride is introduced into the sumples. An induction coil is then wound on this supple. This coil together whith a condenser of variable capacity forms the circuit of the bigt-frequency generator. The different primary elements of this measuring daynos differ from each other by the operating liquid and by one parameters of the high-frequency will. In order to cover the measuring cases of 250 to 25,000 cersted,

Card 2/3

A Measuring Device for Magnetic Induction of the IMI-2 Type SOW/119-59-5-15/22

4 exchangeable primary elements are necessary. The measuring errors of this device are under 0.02%. The accuracy of measurement of the device IMI-2 is not affected by a change of parameters of the wiring, by climatic conditions, or other external factors. An advantage of the device is also the independence of the results of measurement of the accuracy of orientation of the primary element in the magnetic field. There are 2 figures.

Card 3/3